

CLAIMS

1. A method of processing data, said method comprising the steps of:
  - (i) retrieving a semaphore value corresponding to a processing resource from a semaphore value store;
  - (ii) storing semaphore identifying data indicative of which semaphore value has been retrieved;
  - (iii) determining from said semaphore value whether or not said processing resource is available for exclusive access by a requesting exclusive access requestor; and
  - (iv) writing a new semaphore value to said semaphore value store, said new semaphore value being indicative of exclusive access being granted to said exclusive access requestor; wherein
  - (v) in response to execution of an exclusive access clear instruction by an exclusive access requestor, clearing stored semaphore identifying data for said exclusive access requestor.
2. A method as claimed in claim 1, wherein said step of writing a new semaphore value returns a result value indicative of whether or not said new semaphore value was written in said semaphore value store.
3. A method as claimed in claim 2, wherein if a different exclusive access requestor has written a new semaphore value to said semaphore value store between said step of retrieving and said step of writing, then said result value indicates that said write of a new semaphore value by said exclusive access requestor has failed.
4. A method as claimed in claim 1, wherein said step of writing also checks said semaphore identifying data to determine whether or not said semaphore identifying data has been cleared between said step of retrieving and said step of writing.
5. A method as claimed in claim 4, wherein, if said semaphore identifying data has been cleared, then writing of said new semaphore value is not attempted.

6. A method as claimed in claim 1, wherein a plurality of data processors share said processing resource.

7. A method as claimed in claim 6, wherein said plurality of data processors share at least a common access point via which accesses to said processing resource are made.

8. A method as claimed in claim 1, wherein a local semaphore identifying data store is provided local to said exclusive access requestor.

9. A method as claimed in claim 7, wherein a write attempt does not reach said common access point if said semaphore identifying value stored in said local semaphore identifying data store has been cleared.

10. A method as claimed in claim 1, wherein a shared semaphore identifying data store is provided local to said processing resource.

11. A method as claimed in claim 1, wherein multitasking processing is performed such that different processing tasks may act as different exclusive access requestors.

12. A method as claimed in claim 5, wherein said exclusive access clear instruction clears said local semaphore identifying data store, but not said shared semaphore identifying data store, and said semaphore identifying data within said local semaphore identifying data store is checked to determine whether or not said semaphore identifying data has been cleared between said step of retrieving and said step of writing.

13. A method as claimed in claim 1, wherein said processing resource is a data element stored within a data memory.

14. A method as claimed in claim 1, wherein an exclusive access clear instruction is executed upon occurrence of one or more of:

- (i) an exception triggering exception handling; and
- (ii) a context switch between different tasks within multitasking operation.

P10077US - 13 -

15. A method as claimed in claim 1, wherein said semaphore identifying data is data indicative of a memory address associated with said processing resource.

16. A method as claimed in claim 6, wherein said shared semaphore identifying data store stores data indicative of which processor is requesting exclusive access to said processing resource.

17. A computer program product carrying a computer program for controlling a data processing apparatus in accordance with the method of claims 1

18. Apparatus for processing data, said apparatus comprising:

(i) retrieving logic operable to retrieve a semaphore value corresponding to a processing resource from a semaphore value store;

(ii) storing logic operable to store semaphore identifying data indicative of which semaphore value has been retrieved;

(iii) determining logic operable to determine from said semaphore value whether or not said processing resource is available for exclusive access by a requesting exclusive access requestor; and

(iv) writing logic operable to write a new semaphore value to said semaphore value store, said new semaphore value being indicative of exclusive access being granted to said exclusive access requestor; wherein

(v) in response to execution of an exclusive access clear instruction by a exclusive access requestor, clearing logic is operable to clear stored semaphore identifying data for said exclusive access requestor.